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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/782,939	02/23/2004	Erik J. Shahoian	IMMR-0052B	7661

60140 7590 12/07/2006

IMMERSION - THELEN REID & PRIEST L.L.P
THELEN REID & PRIEST L.L.P
P.O. BOX 640640
SAN JOSE, CA 95164-0640

EXAMINER

LIANG, REGINA

ART UNIT PAPER NUMBER

2629

DATE MAILED: 12/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/782,939

Applicant(s)

SHAHIOIAN ET AL.

Examiner

Regina Liang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 October 2006.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9, 12-20, 22, 23 and 26-36 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9, 12-20, 22, 23 and 26-36 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 10/2/06.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

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DETAILED ACTION

DETAILED ACTION

1. This Office Action is response to amendment filed 10/2/06. Claims 1-9, 12-20, 22, 23, 26-36 are pending in the application.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Drawings

3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the “coupling member” (claim 1) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet”

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pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 29, 32, 36 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The original specification does not disclose “a sensor to detect movement of the housing in at least four degrees of freedom with respect to ground” as is now claimed in claims 29 and 32.

The original specification does not disclose “sensing movement of the manipulandum along at least four degrees of freedom” as is now claimed in claim 36.

Double Patenting

6. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the

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reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

7. Claims 1-9, 12-20, 22, 23, 26-36 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-50 of U.S. Patent No. 6,184,868. Although the conflicting claims are not identical, they are not patentably distinct from each other because they both are claiming the actuator being configured to output a haptic feedback to the moveable portion of the housing.

Two representative claims from the US Patent No. 6,697,043 and the instant application are compared in the following:

Claim 17 of the US Patent No. 6,184,868	Claim 1 of the instant application
17. A haptic feedback control device for inputting control signals to a computer and for outputting forces to a user of the control device, the control device comprising:	1. A device, comprising

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a housing including a fixed portion and a moveable portion, wherein said user engages both said fixed portion and said moveable portion of said housing when using said device;	a housing having a fixed portion and a moveable portion, the moveable portion configured to move laterally with respect to the fixed portion;
a coupling coupled between said moveable portion and said fixed portion and allowing said moveable portion to move relative to said fixed portion in a direction parallel to an outer surface of said moveable portion, said portion of said outer surface being contacted by said user when said housing is grasped by said user; and	a coupling member coupled to the moveable portion and the fixed portion, wherein the coupling member is configured to allow selective movement of the moveable portion with respect to the fixed portion; and an actuator coupled to the coupling member,
an actuator coupled to said coupling, said actuator outputting a force on said coupling to cause said moveable portion to move with respect to said fixed portion.	the actuator configured to output haptic feedback to the moveable portion of the housing via the coupling member.

Form the side-by-side comparison above. It is noted that claim 1 is broadening from claim 17 of the US Patent No. 6,184,868. For example, claim 1 of the instant application does not claim the device for inputting control signals to a computer. However, it would have been obvious to one of ordinary skill in the art to have realized that the actuator is controlled by the computer, so as to provide the feedback to the user.

Claim Rejections - 35 USC § 102

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8. Claims 1-9, 12-20, 23, 26-29, 31, 32 are rejected under 35 U.S.C. 102(b) as being anticipated by Salcudean et al. (US Patent No. 5,790,108).

As to claim 1, Salcudean discloses a device, comprising: a housing (Fig. 1) having a fixed portion (12) and a moveable portion, the moveable portion (18) configured to move laterally with respect to the fixed portion (12, 13); a coupling member (platform 14) coupled to the moveable portion (18) and the fixed portion (12, 13), wherein the coupling member is configured to allow selective movement of the moveable portion with respect to the fixed portion (see Fig. 1); and an actuator (70, 72) coupled to the coupling member (14), the actuator (70, 72) configured to output haptic feedback to the moveable portion of the housing via the coupling member (see col. 4, lines 42-52 for example).

As to claim 2, Salcudean discloses the coupling member is a flexure member (128, 10, Fig. 7).

As to claim 3, Salcudean discloses the haptic feedback is output based on an oscillation of a shaft of the actuator (see Fig. 7).

As to claim 4, Fig. 2 of Salcudean discloses the coupling member (platform 14) includes a first flexure member (rod 32) and a second flexure member (rod 34), the first flexure member and the second flexure member being coupled between the moveable portion and the fixed portion (Fig. 2), the actuator being configured to output the haptic feedback via at least one of the flexure members (col. 4, lines 42-52 for example).

As to claim 5, Salcudean discloses a manipulandum (18) disposed adjacent to the moveable portion, the haptic feedback being imparted to the manipulandum.

As to claim 6, Salcudean discloses a manipulandum (18, Fig. 7) disposed adjacent

to the moveable portion, the haptic feedback being imparted to the manipulandum, the manipulandum is fixed in position with reference to the moveable portion (Fig. 7).

As to claim 7, Salcudean discloses a button (132, Fig. 8) disposed adjacent to the moveable portion, the haptic feedback being imparted to the button (col. 7, lines 42-50).

As to claim 8, Salcudean discloses a button (22, Fig. 7; 132, Fig. 8) movable in a degree of freedom disposed adjacent to the moveable portion, the haptic feedback being imparted to the button in the degree of freedom.

As to claim 9, Salcudean discloses a sensor (detector 66, col. 4, lines 19-42) coupled to the housing, the sensor being configured to detect a movement of the moveable portion with respect to the fixed portion.

As to claim 12, Salcudean discloses a device, comprising: a button (22, Fig. 7, 132, Fig. 8) depressible along a degree of freedom; an actuator (124) coupled to the button; a sensor (col. 7, lines 51-58) configured to detect a displacement of the button along the degree of freedom; and a processor (Fig. 11) coupled to the actuator and configured to send a signal to the actuator based on the detected displacement, the actuator (124) configured to generate the haptic feedback at least along the degree of freedom based on the signal.

As to claim 13, Salcudean discloses the actuator (124, Fig. 7) is a voice coil.

As to claim 14, Salcudean discloses the actuator (124) includes a coil coupled to the button and a magnet coupled to a housing in which the button is disposed (see Fig. 7).

As to claim 15, Salcudean discloses the actuator (124) includes a magnet coupled to the button and a coil coupled to a housing in which the button is disposed (see Fig. 7).

As to claim 16, Salcudean discloses the sensor is an analog sensor configured to

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output a position signal, the position signal associated with a position of the button (see col. 7, lines 51-58).

As to claim 17, Salcudean discloses haptic feedback includes a vibratory force produced as a function of time (e.g. damping force).

As to claim 18, Salcudean discloses haptic feedback includes a spring force (128, 130, Fig. 7) produced as a function of the displacement of the button.

As to claim 19, Salcudean discloses the haptic feedback includes a damping force produced as a function of a velocity of the button because the button is connected to the spring.

As to claim 20, Salcudean discloses a flexure member (128, 130) coupled to the button and a housing in which the button is disposed.

As to claim 23, Salcudean discloses a housing, the button disposed in the housing; and a joystick coupled to the housing, the joystick configured to control a position of a graphical object (see Figs. 8 and 12).

As to claim 26, Salcudean discloses the actuator being a first actuator (70, Fig. 1), the device further comprising a second actuator (72, Fig. 1) configured to output a vibration.

As to claim 27, Salcudean discloses isometric controller (e.g. mouse or joystick) configured to control a position of a cursor in a graphical display (see Fig. 12).

As to claim 28, Fig. 1 of Salcudean discloses the fixed portion (12, 13) and the moveable portion (18) are configured to engaged by one hand of a user.

As to claims 29, 32, Salcudean disclose the input device having sensor (66 in Fig. 1, 166 in Fig. 10) for sensing the movement of the housing in x, y and z axis (six degrees of freedom) with respect to ground (fixed portion such as a base).

As to claim 31, Figs. 7, 8 of Salcudean discloses a button (22, 132) is integral to a housing (18, 137) having affixed portion (18, 137) and a moveable portion (22, 132), the fixed portion and the moveable portion configured to engaged by one hand of a user.

Claim Rejections - 35 USC § 103

9. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Salcudean et al. (US Patent No. 5,790,108).

As to claim 22, it is noted that Salcudean the force input device can be a mouse and a joystick but fails to mention a trackball. However, trackball is a well-known input device in the art. It would have been obvious to one of ordinary skill in the art to have applied the actuator of Salcudean for any kind of the cursor input device such as the trackball because the actuator can be fitted into different handheld input device.

10. Claims 30, 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Salcudean in view of Menahem (US 5,142,931).

As to claims 30, 33, Salcudean disclose the input device can be a joystick (Fig. 8). Salcudean does not explicitly disclose the joystick housing is adapted to be coupled to a linkage mechanism coupled to ground. However, Figs. 1 and 2 of Menahem teaches a joystick housing is coupled to a linkage mechanism (shaft 42) coupled to ground (base

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12). Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the joystick of Salcudean to have a linkage mechanism as taught by Menahem so as to operate the joystick in three axes easily.

11. Claim 34-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Salcudean in view of Kramer (US 6,059,506).

As to claim 34, Salcudean discloses a method for providing haptic feedback to a manipulandum (Fig. 7), comprising: sensing movement of a button (22, Fig. 7) along a degree of freedom (col. 7, lines 51-58), the button of a moveable portion of the manipulandum, wherein the moveable portion moves along a substantially same plane with respect to a surface of a fixed portion (18) of the manipulandum; transmitting a control signal to a processor upon sensing movement of the button, receiving a haptic feedback signal from the processor based on the control signal, and outputting haptic feedback to the button along the degree of freedom in response to the haptic feedback signal (col. 7, line 51 to col. 8, lines 38).

Salcudean does not disclose receiving a first haptic feedback signal from the processor based on the first control signal and receiving a second haptic feedback signal from the processor based on a second control signal. However, Kramer teaches a force feedback interface device, a generated force feedback is proportion to the force applied by the user (col. 7, lines 43-56, this corresponds to receiving a first and a second haptic feedback signals based on a first and a second control signals, respectively). Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device of Salcudean to have the feature of receiving a first haptic

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feedback signal and a second haptic feedback signal as taught by Kramer so as to allow a user to simulate the different force sensation of a push button switch as a pressure or force applied by the user to indicate to the user the different level of selection/operation.

As to claim 35, Fig. 12 of Salcudean teaches the manipulandum control a graphical object in a graphical environment as claimed.

As to claim 36, Salcudean teaches the device having sensors for sensing the movement of the device along x, y and z axes (six degrees of freedom).

Response to Arguments

12. Applicant's arguments with respect to claims 1-9, 12-20, 22, 23, 26-36 have been considered but are moot in view of the new ground(s) of rejection.

Applicant's remarks regarding Double Patenting rejection have been noted, however the rejection cannot be overcome without the filing of a terminal disclaimer.

Applicant's remarks on pages 10-11 regarding Salcudean "fails to teach a coupling member" are not persuasive. Fig. 1 of Salcudean teaches a coupling member (platform 14) coupled to the moveable portion (18) and the fixed portion (12, 13), wherein the coupling member (14) is configured to allow selective movement of the moveable portion with respect to the fixed portion as claimed.

Applicant's remarks on pages 11-12 regarding claim 12 are not persuasive. Col. 7, lines 51-58 of Salcudean states "instead of the tactile element 22 functioning as a tactile element it could be used as a z controller by providing a suitable **position sensor** to sense the position of the element 22 when it is displaced from a rest position or alternatively as a bi-stable switch for limited z direction control". Clearly, Salcudean

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teaches a button (22) depressible along a degree of freedom (along z direction), a sensor configured to detect a displacement of the button along the degree of freedom as claimed.

Conclusion

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

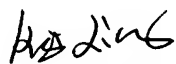
14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Regina Liang whose telephone number is (571) 272-7693. The examiner can normally be reached on Monday-Friday from 8AM to 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Hjerpe, can be reached on (571) 272-7691. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for

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published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Regina Liang
Primary Examiner
Art Unit 2674

12/6/06